II. Finalization of specification for procurement of 14 Ton capacity Hydra Crane required for BESCOM Central stores.

The General Manager, (QS&S), briefed that QS&S section have received the internal note from procurement section requesting to furnish the specification and rates for 14 Ton capacity hydra crane for loading and unloading of materials at Central stores BESCOM.

In this regard, current available models for 14 Ton hydra crane specification in market is verified and prepared comparison statement of different models and placed before committee for discussion.

After detailed discussion, the committee decided that the technical parameters of the 14 Ton capacity Crane shall be made restricted to available standards of the market and proposed the allowable Maximum and Minimum values to the parameters as per available standards. The following major parameters were discussed and finalized to incorporate in the proposed Crane specification.

		ESCORT HYDRA 14	ACE 14XW	Shakti 14	Committee Proposal
1	**Working capacity**	**14 Ton**	**14 Ton**	**14 Ton**	**14 Ton**
2	**ENGINE**	Simpson S-433 Four Cylinder, Water Cooled Diesel Engine or equivalent Engine	4-cylinder, water cooled diesel engine developing or equivalent Engine	Simpson 4-cylinder, water cooled diesel engine developing or equivalent Engine	4-cylinder, water cooled diesel engine developing or equivalent Engine
	Rated power	49 BHP @ 2200 RPM	47.5HP @ 2200 RPM	49HP @ 2200RPM	**47.5HP @ 2200 RPM or more**
3	**TRANSMISSION**				
	• **Type**	Heavy duty transmission developed specially for crane application, Sliding Mesh, spur teeth gearbox. six forward and two reverse speeds with high and low selector lever	Heavy duty Sliding Mesh, Six forward and two reverse speeds with high and low selector lever	Heavy duty Sliding Mesh, Eight forward and two reverse speeds with high and low range selector,	Heavy duty transmission developed for crane application. sliding mesh, spur teeth gearbox coupled with straight drive axle. **Min Six forward and two reverse speeds with high/low selector lever.**
	• **Speed**	**25 Kmph** - restricted, as per safety norms (without load)	**28 km/hr** without load	**27 km/hr** without load	**25kms/Hr or more (without load)**
	• **Clutch**	Single plate, heavy duty dry friction type clutch plate especially designed for crane application.	Heavy duty clutch, single dry friction cerametallic clutch plate with diaphragm type pressure plate	Heavy duty clutch, single dry friction woven clutch plate especially designed for crane application,	Heavy duty dry friction type clutch plate especially designed for crane application.
4	**BRAKE**				
	• **Front Wheel**	Wheel Pneumatically assisted hydraulic brakes	Pneumatically assisted hydraulic brakes. Front and rear brakes are actuated through a single pedal	Wheel Pneumatically operated dual circuit air breaks.	Hydraulic brakes
	• **Rear Wheel**	Wheel Mechanical shoe brakes actuated through a slave cylinder		Pneumatically operated at rear wheel	Disc brakes or rear brakes are actuated through a single pedal/slave cylinder
	• **Parking**	Mechanically actuated at rear wheels	Air assisted Hydraulic parking brakes provided	Pneumatically operated	Hand control valve operated, Air assisted Hydraulic parking brakes

5	**TYRE**				
	• Front	**11.00x20-16PR** (Four Nos.),	**11.00 X 20 - 16 PR**	**11.00 X 20 - 16 PR (4 Nos)**	**11.00 X 20 - 16 PR (4 Nos)**
	• Rear	**13.00x24-12PR** (Two Nos.),	**13.00 X 24 - 12 PR**	**13.00 X 24 - 12 PR (2 Nos)**	**13.00 X 24 - 12 PR (2 Nos)**
6	**BOOM**				
	• Telescoping	Three part box type hydraulically operated, Rope compensated & synchronised	3 Parts boom hydraulically operarated extensions	4 Parts boom hydraulically operarated extensions	3 Parts hydraulically powered boom
	• Boom length	12.5Mtrs	11.25 mtrs height	10.8Mtrs	10.8 Mtrs or More
	• Max. Working Height	15.5Mtrs	15.1Mtrs	15.5 Mtrs	15.1Mtrs or More
	• Derricking	Through double acting jacks.	Through double acting jacks	Through double acting jacks	Through double acting jacks
7	**HOIST MECHANISM**				
	• Hoist	Hydraulic winch. Six falls (Winch Capacity 12T), Four Falls (Winch Capacity 10T) Rope dia 13mm	Winch is driven by hydraulic motor and fitted with hook block employing 4 falls of 13 mm dia rope	Hoist mechanism Hydrulic Winch 6 fall (Winch Capacity 14 Ton) Rope dia. 13mm	Hydraulic winch, minimum four falls. Rope dia 13 mm
9	**ELECTRICAL SYSTEM**				
	• Type	12V Single battery, Negative earth	12V Single battery, Negative earth with 35 Amps alternator and 75 Amp-hr battery,	12V (88AH) single battery negative earth	12V Single ba Negative earth
10	**CAPACITIES**				
	• Fuel Tank	45 Ltrs.	45 Ltrs	60Ltrs	**45 Ltrs. or more**
	• Hydraulic Tank	90 Ltrs.	125 Ltrs above	120Ltrs	**90 Ltrs or more**
11	**RATED CAPACITY**	14 Ton at 1.6 m radius	14 Ton at 1.5 m radius	14 Ton at 1.5 m radius	14 Ton at 1.5 m or more radius
		2.0 Ton at 9.9 m radius	2.5 Ton at 8.2 m radius	2.0 Ton at 9.2 m or more radius	2.0 Ton at 8.2 m or more radius
12	**Operating Weight(Kg)**	11,200 Kg	12,000 kg	12210Kgs	**11200kg or More**
13	**SAFETY SYSTEM**	• Overload audio warning system.	·overload audio warning system	O.C. value in lift cylinder.	Overload audio warning system
		• Hose protection failure device	· Hose protection failure device	·Hose protection failure device	· Hose protection failure device
		• Safety brakes on hoist,	· Safety brakes on hoist	·Safety brakes on hoist	·Safety brakes on hoist
		• Cylinder guard for protection	· Cylinder guard for protection	· Cylinder guard for protection	·Cylinder guard for protection
			· Audio over hoisting indication	· Audio over hoisting indication	· Audio over hoistin~ indication
14	**STANDARD ACCESSORIES**	· All Weather Cabin	·All Weather Cabin	fully enclosed with view cabin with roto mould canopy.	·All Weather Cabin
		· Lift Cylinder Guard	·Lift Cylinder Guard		·Lift Cylinder Guard
		· Turn & Reverse Lamp	·Turn & Reverse Lamp	· Turn & Reverse Lamp	·Turn & Reverse Lamp
		· Front Bumper	·Front Bumper/ protector		· Front Bumper/ protector
		· Rear View Mirror	·Rear View Mirror	· Rear View Mirror	· Rear View Mirror
		· Reflectors	·Reflectors	·Reflectors	· Reflectors
15	**STREERING**				
	• Type	Articulated power steering, hydraulically controlled through 2 double acting jacks	Articulation through 3 hydraulic cylinders	Articulated power steering, hydraulically controlled through 2 double acting cylinders.	Articulated power steering,
	• Articulation	upto 56°	55° articulation on either side	56° articulations through 2 Double acting cylinders.	55° articulation (Minimum)
	• Turning Radius	6.5m	6.5 Mtrs (approx) on outer rear wheels	6.5 Mtrs.	6.5 Mtrs

16	**HYDRAULIC SYSTEM**				
	Pump	Vane Type Hydraulic pump	Gear/Intra vane type main pump	Vane hydraulic pump	Vane Type Hydraulic/main pump
	Control Valve	4 spool control valve with built in pressure relief valve and precision control	4 spool control valve (Heavy duty)	4 spool control valve with relief valve	4 spool control valve with built in pressure relief valve and precision control
	Hydraulic Filter	Suction line has a 100 mesh inline strainer while return line has 25 micron full flow filter	Suction line has a 100 mesh inline strainer while return line has 25 micron full flow filter	Suction line has 100 mesh inline strainer while line has 25 micron full flow filter.	Suction line has a 100 mesh inline strainer while return line has 25 micron full flow filter
17	**OPERATIONAL TIMINING (No load rated Engine RPM)**				
	Hoist Line Speed	53Mtrs/minute max.(Single line)	50 Mtrs/Minute Single line speed		50 Mtrs/Min or more Single line speed
18	**OPTIONAL ACCESSORIES**	• Fly Jib 2.3 m length	• Fly jib (1.25 tonnes max capacity)	• Fly jib	• Fly Jib 2.3 m length
		• Fire Extinguisher	• Fire Extinguisher		• Fire Extinguisher
		• Spark Arrestor	• Spark arrester		• Spark Arrestor
		• Air Conditioned cabin	• Air Brakes		
		• Steering Wheel	• Steering Wheel	14 x 25 Heavy Duty Tyre	• Steering Wheel
		• Extra hooks	• 4 part boom-3 part fully hydraulic & 4th part power extended	Slotted boom, RD boom	• Extra hooks for boom
		• Man Carrying Basket	• Simpson S433 Engine	GPS System	• Man Carrying Basket
		• Forks	• Over hoisting hydraulic cutoff	Out Rigger	• Forks
		• Safe load indicator with hydraulic cut-off	• Safe load indicator/LMI	• Safe load indicator/LMI	• Safe load indicator with hydraulic cut-off

The committee has directed to adopt the crane specification as proposed above.

The Ex-show room price including GST for the 14Ton capacity Crane available in market and tabulated as below. The committee directed to calculate average the price of the available 3 Nos of models as mentioned below to fix as BESCOM rate for proposed crane.

Sl.No	**ESCORT HYDRA 14** in Rs	**ACE 14XW** in Rs	**Shakti 14** in Rs	**BESCOM Proposal** in Rs
1	23.0 Lakhs	20.0 Lakhs	21.0 Lakhs	**21.3 Lakhs**
2	Road Tax, Insurance, TCS and RTO registration cost at extra as per actuals at the time of registration.			

III. Modification of specification 16 Ton GVW, 6 wheeler truck and rate.

The committee members once again reviewed the previous meeting finalized technical specification of the 16 GVW Truck and opined to include/modify in some of the major parameters of the specification.

The following parameters were discussed and finalized to incorporate in the proposed truck specification.

- **ENGINE-16TGVW BS-IV:** Type of the engine should be water cooled, direct injection, turbo charged, intercooled diesel engine, power of the engine- Min **120kW (160HP) @ 2400RPM** instead of [**100kW (136HP) @ 2400RPM],** Engine

Torque- Min 450Nm @ 1400RPM, displacement (cc)- 3300 CC or more, Air cleaner type- dry type remote mounted, Fuel pump-Electronic, No. of cylinders-04, CLUTCH-single plate dry friction type.

- **GEARBOX :** Type of the gearbox should be synchromesh, included **Min** No. of gears-6 Forward + 1 Reverse Gear, Front Axle- Heavy duty forged I beam, Rear axle- Reverse elliot type, single reduction hypoid gears, fully floating axle shafts.

- **DIMENSIONS:** To incorporate maximum wheel Base as **5100-5200mm** instead **of [upto 5200mm]** and Min Ground clearance (mm)- **250mm** instead **of [225mm or more]**.

At last meeting is concluded with vote of thanks.

(Raghu K.S)
Deputy General Manager (Ele)
Quality Standards and Safety,
BESCOM

Copy submitted for kind information to:

1. The Chief Engineer (Ele) O&M BMAZ/BMASZ/BRAZ/CTAZ BESCOM.
2. The Chief General Manager, I/A Corporate office, BESCOM, Bangalore.
3. The General Managers (Ele), QS&S, Corporate office, BESCOM
4. The General Managers (Ele), Procurement Corporate office, BESCOM, K.R. Circle, Bangalore.

Copy to:

1. PS to D(T), with request to place it before Director Technical BESCOM for information.
2. MF/OC.